WHAT IF...ETHERNET FAILED? WINDOWS 8 FLOPS? PAGE 12

NETWORKWORLD

THE CONNECTED ENTERPRISE = OCTOBER 22, 2012

Web-based conferencing comes of age

Adobe Connect and Cisco WebEx tie for first in 8-vendor test.

PAGE 23 ▶

Virtual desktops: Customer tips from the trenches

BY TIM GREENE

THE LURE of virtual desktop infrastructure — fewer costs for endpoints, reduced power requirements, lower management costs, better security — is compelling. But mastering the environment is tricky, say IT pros who have embraced the technology.

VDI is not for everybody, customers agree, but despite its pricey initial costs and the need to tweak it in order to keep performance high, interest in the technology is growing. IDC expects sales of virtual client computing to grow from $2.3 billion in 2011 to $3 billion-plus by 2015, one-third of that specifically VDI.

Among those taking the plunge: Beaufort Memorial Hospital in South Carolina deployed VDI to executives about a year and a half ago, and it reaped security benefits.

Rather than having hundreds of hard drives distributed on workstations around the hospital that contained patient information, all that data was stored centrally. None of the

▶ *See* **VDI,** *page 14*

VET VS GRAD techdebate

The better hire: The 50 year old IT veteran or the fresh grad?

PAGE 20 ▶

FROM DETAILS TO DESIRES: THE POWER OF BIG DATA.

Companies aren't short on data. In fact, with the average large business storing more than 200 terabytes, companies have more than enough data to tell them who is buying their product, as well as how, when and where the buying happens.

DATA'S NEW VOICE.

Today, however, customers expect a company to know why they're buying. Or why they aren't. Because when a company knows what motivates customers, it can serve them better.

The good news is such data exists, just not in the columns, rows, reports and purchase histories we're used to. It's called big data, and it comes from tweets, videos, clickstreams and other unstructured sources. It's the data of desire. And today, we have the technology and tools to make sense of it.

So now, instead of learning which customers it has lost, a company can learn which customers it might lose and present timely offers or products motivating those customers to stay. Using IBM Smarter Analytics to identify which customers were most likely to switch to another communications carrier, XO Communications was able to predict likely customer defections within 90 days, reducing churn by 35 percent the first year.

With IBM Smarter Analytics, companies are gathering big data and using it to ask—and answer—smarter questions about what their customers really want.

ibm.com/usingbigdata

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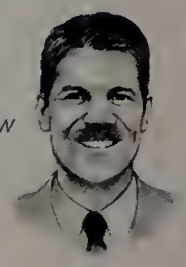

Patrick Neeley
Chief Business Officer, Chickasaw Nation Division of Commerce

Combining big data with company data paints a better picture of the customer.

80% *of the data currently produced is unstructured —coming from sources like images, videos, tweets, posts and e-mails.*

MINING MOTIVATION.

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FROM THE EDITOR | JOHN DIX

The Huawei question

The controversy swirling around use of Huawei telecom gear raises some interesting questions about the global nature of business and the future of cyberwarfare.

The U.S. House Permanent Select Committee on Intelligence issued a report (tinyurl.com/9buwqbu) warning telecom firms to avoid buying Huawei gear for fear the Chinese government/military has required the company to build in backdoors that would enable a host of nefarious activities, everything from snooping to theft of intellectual property and remote control.

The Economist first stirred the pot in August with its story "The company that spooked the world" (tinyurl.com/cr6pz8h), which explored how Huawei has grown in 33 years to become the second largest telecom equipment supplier in the world with revenues in 2011 of $32 billion.

"Critics are convinced [Huawei] . . . has stolen vast amounts of intellectual property," the magazine wrote, "and that it has been heavily subsidized in its expansion by the Chinese government, eager to use it as a Trojan horse with which to infiltrate itself into more and more foreign networks."

While Huawei seems to have outdistanced the intellectual property accusations, U.S. regulators are still spooked about the company's relationship with the Chinese government, even after holding hearings to explore those relationships.

In hours of interviews, Huawei "failed to provide thorough information about its corporate structure, history, ownership, operations, financial arrangements, or management," the report states, and also would not provide "specific details about the precise role" played by the Chinese Communist Party Committee.

Some observers dismiss all of these concerns as paranoia, reasoning the company is too big to risk its very existence this way, while others say it is simply FUD stirred up by U.S. firms afraid of the arrival of this low-cost provider.

But those with experience doing business in China not only believe what has been said, they simply expect it to be true. "Companies and the government are very tight over there," an executive with a U.S. service provider told me. "And people feel it is what they should be doing to help the government." What's more, he said, even though no sign of wrongdoing has been found, it doesn't have to be Trojan code, it could simply be vulnerabilities that could be exploited later.

Congress is rightly worried about the possibility of having zombies at the heart of critical infrastructure that could be awakened by a foreign power to spy on companies or play a role in a cyberwar. Failing better cooperation, it makes sense to keep Huawei out, but there are risks.

One, China is a huge and growing market that many domestic players are counting on to fuel growth. What happens if China decides to treat our top players the same way? And two, global supply chains being what they are, with components sourced from all over, does this just give us a false sense of security?

More investigation is required.

John A. Dix

inside

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bits

Juniper trimming up for a sale?

THOSE LAYOFFS HAPPENING at Juniper might be to dress the company up for a sale. That's some of the speculation swirling inside the company, fueled by reports that Juniper has hired an investment banker to manage bids from potential buyers. Benzinga.com reports that Juniper has hired JP Morgan to handle potential offers for the company. Citing unnamed sources, the site states Juniper has already received an offer in the high $20s per share, and that storage titan EMC has been mentioned as a potential buyer (although some Wall Street watchers say EMC would be more likely to hitch up with Brocade, and one said Ericsson might be a more viable Juniper suitor). Juniper and EMC both said they don't comment on "rumor or speculation". ***tinyurl.com/9tpqdzt***

IT VIDEO

LinkedIn gets a refresh

LinkedIn users will soon start seeing a redesigned profile page. Unveiled last week, the refresh is one of the biggest in years for the professional networking site and is an attempt to get people to share more and stick around longer. ***tinyurl.com/9kc2325***

Apple: "We've got a little more to show you."

APPLE ISSUED invites this past week for an event in San Jose on Oct. 23 at which it teases that it's "got a little more to show you," supporting speculation that the company will introduce an expected mini iPad. The tablet is expected to boast a 7.85-inch screen that's just a little bigger than those from Amazon and Google. The possibly scary news for Apple is that analysts say the itsyPad could cannibalize sales of bigger and pricier iPads. The iPad Mini will cut into full-size Apple iPad sales, according to predictions by two investment analysts this week. The smaller iPad, widely expected to have a 7.8-inch screen, will draw 15% to 20% of consumers who otherwise would have bought the larger size, analysts estimate. But that still means most buyers will represent an "incremental opportunity" for Apple to increase its tablet market share through a smaller form factor. ***tinyurl.com/9mqqexk***

AT&T catches spectrum break

THE FCC has voted to approve an agreement that will bring an end to a 15-year fight over interference concerns over mobile broadband service in the 2.3GHz band of spectrum. The FCC's vote last week will allow AT&T and other mobile carriers to provide mobile and fixed broadband service in a 30MHz band of wireless communications service (WCS) spectrum. The commission's vote approved a deal between AT&T, the largest spectrum holder in the WCS band, and

Google turns its data centers into an art show

GOOGLE IS offering a look inside its data centers with a series of stunning photographs that would be more at home in an art gallery than a technology manual. Under the heading "Where the Internet Lives," Google published dozens of color photographs last week that depict some of the technology, people and locations that keep its services running. There are also one or two insights into how its data centers operate, like the shot of a vast library of backup tapes at a facility in South Carolina, where robotic arms store the tapes and retrieve them when they're needed. But most of the show is eye candy for tech enthusiasts, showing abstract patterns of curved pipes, Ethernet cables gathered into graceful arabesques, and server floors lit with colored lights, like dance clubs for robots. ***tinyurl.com/985pjjw***

PARITY BITS

16 QUADRILLION

Number of calculations IBM's Sequoia supercomputer can churn through in a second, making it the fastest beast in the world, 55% faster than the second fastest supercomputer.

SOURCE: POPULAR SCIENCE

Sirius XM, which provides satellite radio service in an adjacent band of spectrum. The deal revises technical rules for mobile carriers operating in the WCS band. ***tinyurl.com/9snuq9o***

It's a bird, it's a plane, no, it's Super Wi-Fi!

"SUPER" WI-FI will be available on seven of 10 smartphones in 2015, according to a market analysis by ABI Research. And they'll have more advanced Bluetooth radios and near-field communications as well. Because of the benefits of the emerging 802.11ac standard for Wi-Fi, ABI Senior Analyst Josh Flood forecasts very rapid adoption in smartphones and other mobile devices, though backward compatibility with 802.11n will let them link with existing access points and hot spots for a long time to come. ***tinyurl.com/9qkcoqx***

Cisco, Citrix forge ADC alliance

CISCO WILL reference sell Citrix's NetScaler application delivery controller as part of an expanded relationship between the two companies to address cloud and mobile opportunities. The NetScaler ADC will replace Cisco's Application Control Engine (ACE) product in cloud-based application performance requirements. Cisco recently announced that it would discontinue further development of the ACE product after losing more than half of its market share in ADCs over the past four years to F5, Citrix and other players. ***tinyurl.com/8rno3lb***

GOOD | BAD | UGLY

Microsoft Surface tablet: Sweet ride

MICROSOFT WINDOWS Division chief Steve Sinofsky came up with an innovative way to promote the company's new Windows RT tablet, which sold out pre-orders this past week: He strapped some wheels onto it and skateboarded on it. Anything to outdo the iPad...

MiniFlame no small problem

bad

KASPERSKY LAB last week released a paper outlining the discovery of MiniFlame, spying malware that likely stemmed from the same "cyber-weapon factory" that produced the dreaded Flame and Gauss cyberespionage software. The malware is designed for data theft from infected systems, and while it has only been detected in a few dozen systems, it seems likely those are very targeted attacks, the security company warned.

Hack of the heart

ugly

PACEMAKERS FROM several manufacturers can be commanded to deliver a deadly, 830-volt shock from someone on a laptop up to 50 feet away, the result of poor software programming by medical device companies. The new research comes from Barnaby Jack of security vendor IOActive, known for his analysis of other medical equipment such as insulin-delivering devices. Jack said the flaw lies with the programming of the wireless transmitters used to give instructions to pacemakers and implantable cardioverter-defibrillators, which detect irregular heart contractions and deliver an electric shock to avert a heart attack.

peersay

Juniper's role in the marketplace

IT MAY BE true that Juniper is for sale but that is true for any publicly traded company. I think because of disruptive technologies such as virtualization and SDN it is not fully clear who the dominant players of tomorrow will be (Re: "Juniper trimming up for a sale?" tinyurl.com/cvctvt5).

For example Cisco is very strong in switching today but if SDN truly becomes a reality it may lose major revenue. On the other hand Juniper is not a player in the enterprise switch marketplace. So it is unlikely that VMware and EMC could replace Cisco with Juniper. In a same way Cisco can't suddenly become a dominant storage system vendor or virtualization vendor.

Juniper is becoming like Sun. It is increasingly getting marginalized in a narrow high-end market place without much success in any broader marketplace.

Guest

The dollar value of a degree

WHY IS IT that our society cannot see any middle ground between high school and a bachelor's degree? There are so many in-between options, such as associate degrees and professional certificates, which provide workers with valuable skills at a much lower cost (Re: "What does your degree matter? Millions of dollars over time"; tinyurl.com/95zezto)

Derek Payne

Microsoft Surface tablet vs. iPad

I DON'T KNOW how you can compare the iPad build quality to that of a device that you have never touched. From what I can see, the development that has gone into the Surface is far above par and raises the level for even Apple (Re: "Microsoft's Surface tablet already can't compete"; tinyurl.com/8efb3ao).

I don't see why you seem to think that the iPad has such a massive install and user base. You seem to be forgetting that Windows 8 is not only going to be on the Surface, but on Windows-powered phones and just about every desktop PC.

Windows 8 brings a very strong touch- and information-centric interface to the party. I have been using it on a Samsung slate for the last four months and haven't picked up my iPad since. Windows 8 is just more exciting and inviting.

Troy Gerrie

THE SURFACE WILL have to be pretty lame to not have a market. The problem with this article is that it assumes it has to take customers away from Apple in order to succeed. I don't see why that has to be the case. I would never buy an Apple product, but I might buy a Surface if I had a good use for one.

Jdudeck

Save the programmers!

NOT LONG AFTER Microsoft adapted the rush-to-market mentality, there emerged the "extreme programing" paradigm. This philosophy validated the same approach, making it acceptable to slap together some code, push it out, and wait for feedback to correct issues that should have been caught during development (Re: "Real programmers as an endangered species"; tinyurl.com/98kwyzt).

What many folks fail to realize is that cutting time at the creation of the product usually leads to additional support and update time. Pay now, or pay later. In the long run, precious little time is actually saved over the life of the application. Until we can overcome the "instant gratification" mindset, this paradigm will remain strong.

Steven Lorbach

> Cisco is strong in switching but if SDN truly becomes a reality it **may lose major revenue.**

I'M NOT A programmer, but as a consumer I can say that this new approach works best. The problem is that thoroughly testing a piece of software in a vacuum usually leads to a product that does what it is intended to do, but poorly addresses end user requirements.

Programming is not what it used to be because it's a completely different market today than 20 years ago. You no longer program only for the techies. Involving end users earlier closes the loop.

Felix Acosta

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Why risk management fails in IT

BY RICHARD STIENNON, CHIEF RESEARCH ANALYST, IT-HARVEST

IT IS frustrating to see the amount of budget allocated to compliance when you consider that most of the money goes to documenting security controls, not improving defenses. One of the biggest reasons is that risk management, a carry-over from the bigger world of business, does not work in IT security.

While few small businesses have formal risk management programs, most large ones do. The goal is to identify risks and either reduce their potential impact with compensating controls or purchase insurance to further reduce risk. For example, a large airline, thanks to its risk management program, may recognize rising fuel prices could hurt its competitiveness and decide to hedge fuel on the open market.

But try to translate risk management theories to IT and you run into troubles. Every risk management program starts with the dictate to identify all IT assets and weight them based on their criticality to business operations. That leads to the first big problem.

1. It is expensive and almost impossible to identify all IT assets.

While at first glance identifying assets appears to be a simple problem, it is almost fractally complex. IT assets include every computer (desktop, laptop, server), every application (database, email, ERP), every data set (customer lists, earth resources data, product pricing guide), all email, all documents in all versions, all identities, all communications.

Now, add in the proliferation of devices coming in with consumerization — smartphones, iPads, even e-readers — and the data that reside on them. Then add in the dynamic nature of the cloud, where servers can be in a constant state of flux as load is elastically met.

2. It is impossible to assign value to IT assets.

The concept behind risk management is that you assign a value to each asset. There are many algorithms for doing so. It usually involves a cross-functional team meeting and making at least high-level determinations. But it is impossible to assign a dollar value to each IT asset. Is it the cost of replacing the asset? That might work for a lumberyard, but an email server might have a replacement value of $2,000 while the potential damage to a company from losing access to email could be millions of dollars in terms of lost productivity.

What about the value of each email? What about the internal email between the CFO and the CEO on the last day of the fiscal year warning that they missed their targets? Its dollar value is zero, but the risk from that email getting into the wrong hands could be the loss of billions in market capitalization.

Most organizations give up on the dollar value asset ranking and come up with low-medium-high valuations. Try to picture a team of IT asset managers in a room and one of them agreeing that his job is to manage servers that have little or no value. If there is no value to an IT asset, it has long since been replaced or eliminated. Every IT asset is of high value. So why bother classifying them all?

3. Risk management methods fail to predict actual disasters.

In the late '90s the automotive industry attempted to apply risk management techniques to product design. The method of choice was a huge spreadsheet template labeled Design Failure Mode Effects Analysis. The product engineers would sit in a room for days and look at every component — every fastener, every stamping, every piece of cloth in a car seat — and decide every way each component could fail in the federally mandated tests.

We would generate a huge list of possible failures — stripped bolt, fatigue crack, buckling, worn nap — and submit it to upper management who would never look at it. Of course we failed to predict the failures that actually happened in production. You remember the recliner failures on the Saturn car seats?

It is the changing nature of risk that is impacting risk regimes today. It is impossible to know beforehand which IT assets will be of interest to an attacker.

4. Risk management devolves to "protect everything."

For risk management to work it has to be comprehensive. So comprehensive protections are deployed. Firewalls, intrusion-prevention systems, and antivirus and vulnerability management systems deployed to check the exposure of every device on the network. Vulnerability management has to be continuous because vulnerabilities are announced every month for just about every application, OS and device.

A patch management system is then used to ensure that every application has the latest patch. Risk management methodologies strive for that golden state when no vulnerabilities exist. And, failing that, the desire is to minimize the total exposure to new vulnerabilities. Organizations spend an inordinate amount of time and money on these protections. And they still succumb to targeted attacks which use previously unknown vulnerabilities.

What to do? Use threat management techniques, not risk management.

Consider if the U.S. president's morning intelligence briefing was focused on risk management. It would have to take into account the 40 or so U.S. facilities that are involved in producing nuclear weapons, then there may be 250 or so diplomatic missions around the world, and of course the U.S. military bases, and maybe a breakdown of 17 designated critical infrastructure sectors.

Ridiculous. A true risk management report would summarize all of that information into a simple score. An army of risk auditors would be engaged to come up with a uniform scoring system and every "asset" would be given a score which would be weighted and rolled up into a dashboard that gave a single-pane-of-glass view into overall risk every day.

But if such a thing were even possible, what would it have shown the day before the USS Cole was attacked? Or on Sept. 10, 2001?

Of course an intelligence briefing is not about assets; it is about threat actors. Decisions are made based on threats. Real and present dangers are identified and resources are deployed to gather further intelligence (detect), deny, disrupt, delay, degrade, deceive or destroy the threat actors. That is the basis of threat management, an approach that is proving to be much more effective at reducing losses from targeted attacks. ■

Stiennon is chief research analyst at IT-Harvest.

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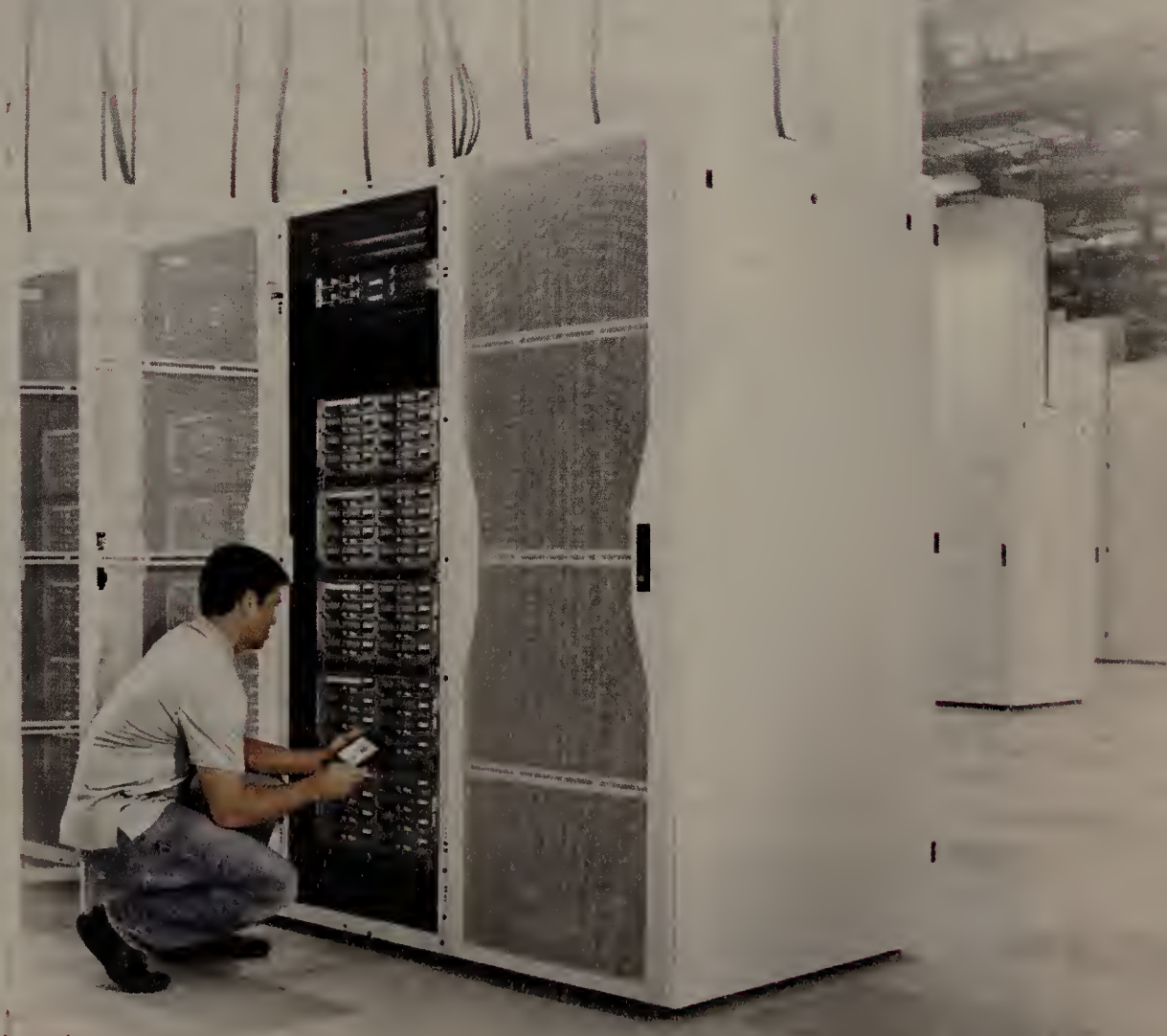

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OpenStack Summit puts focus on cloud's future

BY BRANDON BUTLER

SAN DIEGO — Organizers of the OpenStack Design Summit had a slight problem when the conference got underway in earnest last week. Around 1,000 people had registered for the event, but more than 1,400 actually showed up.

"Who are you?" asked a joking Jonathan Bryce, the executive director of the OpenStack Foundation. "Where did you all come from?"

OpenStack enthusiasts gathering in San Diego were happy to have the extra company. It reinforces, they say, momentum they've seen in recent weeks and months around the project, including new companies joining and the release of its sixth code version, Folsom.

The momentum, in a broad sense, has been somewhat tempered by some calling the project "hype," and others suggesting that it should be moving a little faster.

These reports get back to a central question, both at the OpenStack Summit and in the broader cloud market: Where exactly is OpenStack now and where is it going? How will providers like HP, Red Hat, Cisco, IBM, Dell and Rackspace come together to work with the growing crop of startups — from Piston Cloud Computing to Nebula to Cloudscaling — to shape this project into the future?

Chris Kemp, a cofounder of OpenStack from his days as CTO of NASA, says the project has the potential to fundamentally change the cloud computing landscape.

During his keynote speech, Kemp articulated one of the core visions held by OpenStack enthusiasts: It can be a ubiquitous platform used by both enterprises to deploy private clouds and service providers to launch public clouds. If both those sides use OpenStack to build their respective clouds, Kemp argues that allows for interoperability between the two that is not available in the market today in an open source framework. If OpenStack embraces that, Kemp says the marketplace of users and vendors using the platform will be too big for even the market-leading cloud providers to ignore. "We can tell Amazon what to do, instead of the other way around," he says.

Not everyone is buying that vision. "It's not so straightforward," says Krishnan Subramanian, analyst at Rishidot Research and cloud blogger who attended the event. "It's not a given," he says, that two OpenStack vendors will inherently have interoperability between their systems. Vendors within the OpenStack community need to work together for their users to be able to migrate workloads across the disparate systems.

Kemp says that will come. The features and functionality around security and customized components of enterprises' private cloud need to be replicated in a public cloud for enterprises to truly embrace the cloud. OpenStack, he says, is the way to do that.

The key, he says, is focusing on the users and the applications that will be run on OpenStack. Enterprises in the future will not run all of their applications on a single framework; they will instead use multiple infrastructures and platforms. OpenStack has to not only support those, but integrate features that users care about but that aren't yet developed in the code. High availability, easier usability and cloud monitoring are some of the projects in the queue for future development. ■

Cisco releases OpenStack distribution

Further showing its commitment to the OpenStack project, Cisco has rolled out a free distribution of the open source cloud management platform, which it will package other services on top of.

Cisco becomes one of a growing group of OpenStack member organizations that have released distributions of the open source code, joining Linux-distribution companies Red Hat, SUSE, Canonical and Ubuntu, as well as Rackspace and OpenStack pure-play vendor Piston Cloud Computing.

Cisco Vice President and CTO of cloud computing Lew Tucker, who is also vice chairman of the newly formed OpenStack Foundation, says the value of the Cisco edition of OpenStack is around services that will be integrated into Cisco's OpenStack distribution, especially virtual networking.

For example, Folsom, which is the latest version of the OpenStack code, includes a new feature named Quantum that allows for virtual networking in OpenStack-powered clouds. Cisco has also made its Nexus switches compatible with Quantum and Tucker says in the coming months Quantum will be compatible with the company's virtualized 1000V Switch. In addition to the software-defined networking capabilities, customers will be able to choose a variety of other features that can be added to OpenStack-powered clouds from Cisco. These include high availability, automated installation and monitoring of the cloud.

Cisco made the announcement in a blog post last week, with links to a site where the Cisco OpenStack edition can be downloaded for free, along with a wiki describing various aspects of the code. Cisco uses a variety of other open source tools on top of the OpenStack code and uses automation tools from Puppet in the release. The Quantum code supports Layer 2 segmentation using virtual LAN technology and works on Open vSwitch and Cisco Nexus switches. The edition has been tested on Ubuntu 12.04 and does not require Cisco hardware to run it.

In addition to the OpenStack distribution, Cisco made two other announcements at the OpenStack Summit last week. Cisco is using OpenStack code to create a private cloud within the company that will be used specifically by the WebEx team to create products and services. While Tucker wouldn't divulge what new features would be developed using the OpenStack platform, he says those should be revealed in coming months. Cisco wanted to run a production cloud powered by OpenStack in addition to offering a distribution of the OpenStack code. Cisco is also announcing new functionality in its Intelligent Automation for Cloud around being able to manage heterogeneous workloads. The Multi-cloud Accelerator kit will allow management of cloud architectures powered not only by Cisco and OpenStack, but by other third-party clouds.

Tucker says customer interest in OpenStack is building. Recently the company launched a strategic relationship with Comcast, where the media company will use the Cisco edition of OpenStack as the base for its private cloud. Comcast is a contributing member to the OpenStack Foundation.

— Brandon Butler

Are enterprise app stores the future?

BY MAUREEN POLTE, VICE PRESIDENT OF PRODUCT MANAGEMENT, FLEXERA SOFTWARE

WITH THE exploding success of the Apple and Android consumer app stores (Apple is poised to reach 1 million apps by year-end), it is not surprising that pundits are asking if the same success can be achieved with public business-to-business app stores. There are some unique challenges that public enterprise app stores, like an iTunes, would face, including:

- The high cost of enterprise apps (vs. the "99 cent" apps common on consumer sites).
- The complexity of those apps, and the processes required within most large enterprises to deploy them properly.
- The need to track those licenses for software compliance and software license optimization purposes.
- The concern about security and malware that is endemic in app stores, and particularly risky within the corporate firewall.

For these reasons, there does not yet appear to be an obvious public marketplace app store model that can compare to the iTunes experience. And unless and until these challenges are worked out, that's probably a good thing.

On the other hand, internal enterprise app stores are flourishing today. In this "consumerization of IT" age, in which IT management is under great pressure to deliver better, more user friendly service, internal enterprise app stores are an obvious solution. Their true utility is behind the corporate firewall, where IT can maintain security and control, and where employees can get the apps they need, when they need them, in a user-friendly, familiar self-service environment. Organizations seeking to deploy an enterprise app store should take the following into consideration to ensure success:

Identifying need: When changing the focus from a consumer-oriented app store to an enterprise app store, organizations must address unique challenges around policies and security. Making applications available in an enterprise self-service model requires careful consideration and planning around visibility, approval and licensing requirements.

For instance, visibility requirements often arise around the needs of the business unit, role-based permissions, or even export compliance rules. Developing an appropriate structure within the app store to control what apps a user can request ensures the user gets what he is looking for while the enterprise maintains administrative control.

Moreover, the goal of the consumer-orientated app store is to expose users to as much product as possible — individuals are encouraged to buy as much as they can, and upgrade to "premium" versions over "standard." In contrast, enterprise app stores require controls. For instance, giving employees the choice between standard, professional and premium versions without consideration to their business needs and feature requirement is a recipe for high license costs. Enterprises should therefore only make available a filtered catalog of apps, tailored to the role and needs of users within various departments, that meets actual business requirements — no more, no less.

Approvals: Once the system determines an application is available it must next evaluate approval conditions. While this is often done manually by the business owner (manager, cost center owner) certain applications may need further review by security teams and application owners to ensure the business case and use rights are valid. When cost is a consideration in determining approval, careful review of the application's intended use must match its functional specifications.

The app store must therefore have robust workflow capabilities capable of being tailored to the needs of the organization. For instance, using the example above, workflow capabilities should be flexible enough to allow an app owner to review user requests, in addition to the manager. Once the manager has approved the request from a cost perspective and the app owner from a business need, the final step is to ensure that the licensing being issued is in compliance with the enterprise's software license agreement and entitlements.

Software license optimization: The number of licenses an enterprise has rights to, and the specific manner in which those licenses are entitled to be used (its license position), plays a key role in managing an enterprise app store. If an enterprise issues licenses it doesn't have, or those licenses are issued in violation of specific entitlements in the license agreement, the enterprise can expose itself to unbudgeted six-, seven- and oftentimes eight-figure software audit "true-up" penalties.

Likewise, an enterprise app store must have similar hooks into license inventories to ensure all licenses purchased by the organization are used before new licenses are acquired. If there is unused software that can be reclaimed or reharvested to fulfill the employee app request, the app store must be smart enough to recognize these inventories, otherwise serious overspending on licenses will result.

This risk is not well understood by users, because apps are not paid for by the employee but rather by the organization. This disconnect often results in over-spend if proper inventories, license restrictions and use rights are not evaluated during the time of request, and if the app store does not apply appropriate rules.

The enterprise app store should also provide safeguards preventing access to and download of applications unavailable due to licensing and entitlement restrictions.

With built-in app store capability to alter the approval process based on ever-changing usage of applications, licensing requirements and entitlement rights, enterprises can adapt quickly to license availability limitations and prevent non-compliant use that would subject them to software license audit risk.

Organizations implementing enterprise app stores that have also deployed sophisticated software license optimization systems are much better armed with the tools necessary to make real time decisions around licensing. Is there a surplus of available licenses for download? Can a license be used by this particular user in compliance with licensing terms?

Ensuring that the enterprise app store is integrated with the software license optimization solution allows faster business decisions and more sophisticated cost controls. And it provides the end user functionality demanded by today's users, without increasing audit exposure risks due to non-compliant use.

With these fundamental systems in place, the enterprise app store will function to the end user like the consumer app stores they are comfortable with — while still ensuring central accountability and control. ■

Polte is vice president of product management at Flexera Software.

IT Roadmap Washington, D.C. is the one day, cost free, professional-level conference and expo on Dec. 6 that's full of job-ready solutions you can put to work now. Register at ***tinyurl.com/bpaymlr***

What if...

ETHERNET FAILED?

BY JIM DUFFY

CAN YOU imagine a world where carriers offered Metro FDDI services? Or the IEEE defined a standard for Token Bus in the First Mile?

Or ruggedized gear for harsh environments was based on Industrial ATM? Or data center convergence included a proposal for Fibre Channel-over-Token Ring?

What would the networking world look like if Ethernet hadn't won?

"Standards, consistency, simplicity, scale and innovation would have suffered," says IDC analyst Rohit Mehra. "If there was no consistency, networking would be even more complex than it is today."

Others agree.

"It would be more complicated, less reliable and slower," says Zeus Kerravala of ZK Research. "There'd be more outages, and perhaps our expectations on service levels would be lower."

"We would have gone through a much longer period of proprietary networks," says Jon Oltsik, principal analyst at Enterprise Strategy Group. "The goodness of IP, including the Internet, wouldn't have happened as quickly."

Each segment of the network — local area, metro area and wide area — may have had a different technology. Token Ring would have dominated the LAN, though Token Bus in some instances — manufacturing floors, for example — would have had spot deployments.

FDDI may have overtaken the metro area. And ATM and frame relay would have proliferated throughout the WAN, just as they did up until Ethernet-based services began displacing them.

And with all of these technologies populating different parts of the network, consistency of end-to-end service would likely have taken a hit. Gateways and bridges between different technologies would have increased latency, and along with it, capital and operational expense.

And advances like distributed computing and client/server computing — or distributed client/server computing — never would have come about or would have been crippled if they did.

"There'd be no client/server, Microsoft would have had its own protocol and Novell's IPX would still be around," Oltsik says.

"It would have slowed down the move to client/server in the 1990s," Mehra says. "Minicomputer and mid-range systems would have stayed a lot longer with us."

It may have also delayed the onset of 100Gbps speeds, Kerravala says. Token Ring increased in increments of 4x while Ethernet speeds increased 10x, though there were specifications being defined for 100Mbps and Gigabit Token Ring in the late 1990s.

Online TV may also have been slower to emerge, Kerravala says, with Token Ring in the LAN, FDDI in the metro and ATM in the WAN.

And IBM — not Cisco — may have been the 800-pound gorilla in networking if Token Ring had won out in the LAN. IBM was long

► *See* **Ethernet,** *page 30*

WINDOWS 8 FLOPS?

BY TIM GREENE

MICROSOFT LAUNCHES Windows 8 later this month after a year of gradually making the new operating system more and more available, hoping for a big hit that will drive sales this holiday season and beyond, and giving the company new hope of grabbing a bigger share of tablet sales.

But what if Windows 8 flops?

For businesses, the problem won't be that dire, says Paul DeGroot, principal consultant at Pica Communications. Businesses that are Microsoft shops already have an operating system, likely Windows 7, but if not, Windows XP with a plan to adopt Windows 7 soon before support for XP ends next spring.

If Windows 8 is a complete bust, enterprises can stick with Windows 7 and wait until Microsoft picks itself up and does a better job with Windows 8 service packs or Windows 9 (or whatever it calls the next major release), DeGroot says. After all, that's what happened with Windows Vista, says Matthew Casey, an analyst with Technology Business Research, and Microsoft can handle a disappointing Windows 8.

In fact, that is a likely scenario, DeGroot says. "Most of the companies I work with are standardizing on Windows 7. They are not going to be migrating to Windows 8." He says many businesses will license Windows 8 but end up reimaging their networks with Windows 7, similar to how many enterprises licensed Vista but installed XP.

Casey says a Microsoft stumble with Windows 8 will be handled by businesses the same way the performance of Windows Vista was handled. "If that's the case we'll see a similar reaction from Microsoft," he says. "It's not going to be them closing their doors." The company will press on with Windows 8 and its fundamental architecture.

The impact on consumers won't be that great, either. If Windows 8 doesn't catch on a big part of the reason will be that consumers are buying some other tablet platform they like better, so they'll be happy. But according to Gartner, Microsoft will be missing a big opportunity to make its mark in mobile devices if the Windows 8 gamble doesn't pay off.

"It is a risk that Microsoft must take to stay relevant in a world where mobile devices with new modern experiences are becoming the norm," Gartner says in a research note, "Is Windows 8 in Your Future?"

The popularity of smartphones and tablets has Microsoft playing catch-up, particularly with Apple, whose iPad dominates in tablets and whose iPhone holds down a large chunk of smartphones. "With Windows 8, Microsoft tries to address the excitement of the tablet market by adding a tablet interface to Windows," Gartner says.

If Windows 8 does become popular with consumers and finds its way into enterprises via the bring-your-own-device phenomenon, it will still have hurdles to clear with IT departments.

Ultrabooks and tablets still need to establish themselves in the corporate world where their use raises questions, Casey says. Who

► *See* **Windows,** *page 30*

Wanted: Job candidates with diverse backgrounds to fill booming big-data jobs

BY FRED O'CONNOR, IDG NEWS SERVICE

A CAREER path that began with studying infectious diseases and led to analyzing terabytes of game data may seem a circuitous route. For Brendan Burke, though, the applied math skills he picked up as an undergraduate biology and political science major, the programming skills he added as a bioengineering graduate student, and his use of the two as a research scientist led to a job in the booming IT field of data science.

"A lot of the skill set I developed very specifically for biology could be applied in very commercially viable ways," says Burke, who earned both of his degrees from Stanford University and worked at the California school as a scientist. As head of player science at Playnomics, a Silicon Valley company that uses game data to develop player analytics, the math and computer science skills he used to determine how many touch points a virus requires to spread across a population now help him understand how people interact with games. "Something in data science gets your creative juices flowing when you see something that you built for an entirely different purpose can be used in all of these other ways," he says.

Data science also excites companies that want to use the data they've amassed to make strategic decisions that will benefit the bottom line.

A range of industries are using data to guide business decisions and bring in revenue, says Laura Kelley, a vice president at technology staffing firm Modis. "Companies are using this information to launch products and services. Whether it's what customers are buying, what products or services get the better ROI, [data] comes into strategic decisions."

Businesses, though, are struggling to find employees to handle big data, the term assigned to gathering and analyzing massive quantities of information. This field is relatively new to enterprise IT and although many companies are exploring data science programs, the necessary talent is still maturing, say technology and staffing executives.

This places people with applicable skills in demand, say hiring experts. The U.S. faces a substantial shortage of workers with data science skills, according to a report published last year by consulting firm McKinsey and Company. The report predicted that by 2018 the country will lack 1.5 million analysts who can make strategic decisions using big data and between 140,000 to 190,000 workers with the proper data-processing technology skills.

"There [will be] more career opportunities in the future for this type of strategic analysis," says Kelley, who has seen the business intelligence analyst job change into a data scientist position in the last 18 months. "We've always used information but not to this level. With the amount of data companies are capturing on everything and everybody it's just amazing what can be done with that."

"THERE'S A NUANCED LEAP THERE WHEN YOU MOVE INTO THIS BIG DATA ENVIRONMENT."

JIM YU, CEO AND FOUNDER, BRIGHTEDGE

Colleges have realized the need to train people for those careers and are developing degree and certification programs targeting students and IT professionals. To address immediate data-science staffing needs, which include technical and business roles, companies have adopted assorted tactics.

To handle the more than 100TB of data processed each week by BrightEdge, a San Mateo, Calif., startup that helps companies manage their search engine rankings, CEO and founder Jim Yu wants data workers who grasp the entire scope of big data processing.

People know how to query databases, but there is "an extra layer of understanding" when handling large data sets, which at BrightEdge includes tracking data on more than 150 billion URLs. Experience working with traditional SQL relational databases helps, but big data's scale requires a different processing mind set, he said.

"There's a nuanced leap there when you move into this big data environment," Yu says. "You're really looking at the optimal configuration of taking these massive processing jobs and figuring how do you distribute this load on servers that are much less monolithic and much more distributed."

In addition to database knowledge, Yu notes that strong backgrounds in computer science, algorithms and operating systems are helpful bases to a data science career.

"If they have a good foundation in that, then you pair that up with a [training] program that allows them to understand how to translate into this new architecture," he says. This buddy system, which matches workers who have worked on the big data stack with people who are learning the system, leads to knowledge sharing, he says.

This method also helps people new to extreme data crunching learn which data processing jobs call for big data technology and when to use traditional relational databases, Yu says.

"With big data, one of the advantages is the scale of what you can do," he explains. "But it also means you don't have the same speed of development from having the really simple, flexible standardized SQL language that you can apply to the data set. There are trade-offs that you're making. It's important for the technology staff to have a good appreciation of that."

DataXu, a Boston company that offers a product for managing online advertising campaigns, also takes a team approach to filling data science jobs, says CTO Bill Simmons. Big data workers there have strong math and coding skills and some business savvy, he says.

People who excel in one area, are strong at a second and have a grasp of the third allow the company to form teams based on different strengths.

Possessing "two out of the three is what you need to get the job done," he says, adding that finding people who have a strong background in one of those areas is fairly easy. Standouts in all three skills are harder to come by. "I would be delighted finding someone who is a star in all three areas."

Employers also seek workers whose software skills and data backgrounds match their work environments.

Companies select database software that can handle their data sets, which can be complex, says Rob Byron, a principal consultant in the IT division of staffing firm Winter, Wyman. Employees, for their part, prefer to stick with the software they know.

"The general outlook is if we have a SQL

► *See* **Jobs,** *page 30*

▶ **VDI,** *from page 1*

information was stored on the workstations themselves, says Ed Ricks, vice president of information systems and CIO at the hospital.

Since power consumption for the virtual machine hardware is lower, the hospital uses less power and actually received a rebate for that savings from the local utility.

Help call volume is down, partly because users can self-help for common problems like forgotten passwords. VDI brings electronic medical records to the point of service, something that has won the hospital federal and state grants to help implement the system because it promotes "meaningful use" of EMR in accordance with the American Recovery and Reinvestment Act.

Ricks recommends that anyone adopting VDI make use of their vendors to evaluate and upgrade their networks first to be sure the infrastructure can handle the traffic quickly enough to give fast response times to applications. VDI vendors have been through it before, so take advantage of their knowledge, he says.

Ricks started out testing in a small clinical area to learn workflows and how nurses actually used their machines to determine what desktop image and what roaming capabilities they would need. Knowing what each class of user needs is essential to a successful deployment, he says.

Then it is necessary to educate them about how VDI works and how it differs from the PC terminals they used before.

VDI in medical settings is popular, say John Hoang, solution architect, and Barbara MacKenzie, IS operations and infrastructure manager, at Sydney Adventist Hospital in Australia, a 300-bed facility using VMware VDI products.

One impediment to adoption was enabling single sign-on for doctors and other clinicians making rounds who have to use multiple Samsung zero-client endpoints per day depending on what ward they're on, Hoang says. "Clinicians don't want to be obstructed by logging in and out 60 times a day," he says. "If it takes a minute each time, that's a lot of minutes."

He's trying out a badge system made by Imprivata that allows workers to tap the badge and call up their virtual desktop at a new location with all their apps logged in as long as they have already established a VDI session somewhere on the network.

MacKenzie says it's important as organizations deploy VDI to certify in-house expertise so routine problems can be handled quickly and economically.

Sydney Adventist is expanding to a new building that will host a teaching facility that will be used by two different organizations, so classrooms will have dual use. That seems like a perfect use of VDI, but because it is an educational setting, Hoang and MacKenzie expect it will pose unique problems. So they are seeking advice from that community.

Oral Roberts University in Tulsa, Okla., started off its VMware deployment with 300 desktops in student computer labs using non-persistent Windows 7 images on Dell FX100 zero clients with a back end of Dell servers and EqualLogic storage, says Ron Lee, senior systems engineer at the school.

About 30 staffers use persistent desktops as their primary work platform, Lee says. Another 40 or so access persistent VDI images from university-owned iPads as secondary computers. One faculty member tried to use VDI with the iPad to reach her Windows 7 desktop but found it impractical without a mouse and keyboard and with the small screen. But she found it worked well for accessing data on the go.

Lee says it's important to fit the endpoint hardware to its use in order to get top performance. The school is looking at Wyse (bought by Dell) P25 zero clients because they support PC-over-IP protocol and are loaded with more RAM for client-side caching to improve application responsiveness.

He steers clear of Z50D thin client appliances because the thin client represents another layer that would require management.

Ultimately the school plans to go to 1,200 virtual desktops over the next three years — but not for everybody. Outside of computer labs, students probably won't get virtual desktops. But they can use the VMware View client on their own devices such as iPads to access generic virtual desktops from off campus. Depending on the version of View, they get the client either from a connection server at the university or at Android or Apple stores for free, Lee says.

He says VDI is costly but can eventually pay for itself. The school used a private grant to upgrade its Cisco/Enterasys network in preparation of deploying VDI and then to fund the virtualization software itself. While he wouldn't reveal the cost, he says that at the end of eight years the school will spend half what it would have had it not transitioned to VDI, with the break-even point coming sometime in the fourth year.

He has several recommendations. Phase in the deployments with the simplest ones first, Lee says, because there is a learning curve.

Be wary of creating too many virtual desktop gold images because they make for additional work. The more images there are, the more updates have to be applied. Lee recommends figuring out how to create a common-denominator base image that fits the largest number of end users. To keep down the number of images, he deems it unsuitable to use VDI everywhere.

Scripps Networks — the company behind the Food Network, the Cooking Channel and the Travel Channel — relies on VDI for its developer community, says Selene Tolbert, project manager for development operations at the company's Knoxville, Tenn., headquarters.

The company uses collaboration extensively to support its agile software development process and its developers around the world. If developers tap into a virtual desktop remotely and it goes bad, they call up a new one if the old one can't be fixed; the user continues working.

Tolbert recommends tracking what tools end users need and when the time comes to upgrade gold desktop images, incorporate them.

She says it's imperative to check how licensing differs for applications when they are deployed virtually vs. being installed on PCs. The costs can differ significantly, she says. ■

Is VDI right for you?

Here are some of the factors to consider when weighing whether to adopt virtual desktops:

PROS

- One desktop image to manage
- Quicker resolution if desktop is corrupted
- Centralized data security
- Endpoint hardware that consumes less power
- Offers end users more choice of endpoint device, including BYOD

CONS

- High initial capital cost
- Performance challenges
- IT learning curve
- Not suitable for processor-intensive apps like CAD-CAM
- Requires reorganizing the relationship among desktop, applications, server and data center staff

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TOOLS

VMware Fusion 5 Professional ups the ante for OS X VM tech

I've just fired up VMware Fusion 5 Professional Edition on my iMac under OS X Mountain Lion and I'm really impressed. I last looked at VMware Fusion in June last year when it was at Version 3.1 and since then it has come a long way.

Mark Gibbs' Gearhead

In that column I discussed how I tried to create a virtual machine under Fusion running Windows 98 in a forlorn attempt to play an ancient game, "Star Wars Episode I: Racer," published by LucasArts (Wikipedia notes that the game "currently holds the record for the best-selling sci-fi racing game having worldwide sales of 3.12 million beating other series like Wipeout and F-Zero").

My attempt to run the game under Fusion 3.1 didn't work for a number of complex and frustrating reasons that all pivot on the fact the game depends on Windows 95 or 98 running DirectX 6.1 and that combo just didn't work under Fusion 3.1. It probably won't work under Fusion 5, but I don't have the patience or desire to try to make it work all over again.

So, what does Fusion 5 bring to the table? Well it is optimized for OS X Mountain Lion and for Windows 8 as well. Its user interface is designed for Mountain Lion. You can stream Mac and Windows applications using "AirPlay Mirroring" in Mountain Lion. You can run Windows 8 Home, Professional, Enterprise or any of more than 200 guest operating systems in virtual machines. You can run Windows from a Boot Camp partition. You can run Windows Server 2012 in a virtual machine and you can run Metro applications on your Mac with full screen gestures.

But wait! That's not all! Fusion 5 also supports running Windows 7 and 8 on Retina display-equipped Macs and optionally allows Windows to use full Retina display resolution. You can also run more virtual machines on large-memory Macs sporting 16GB RAM or more and Windows 7 boot performance is up to 40% faster.

There's also USB 3.0 device support for new Macs (which requires Windows 8 or Linux with USB 3.0 support), accelerated 3D desktop support for Linux (including Ubuntu 12.04 LTS 4), improved network performance when using multiple vCPUs, and you can even run OS X Mountain Lion in a virtual machine.

But wait, there's even more! You can run VMware ESXi 5, Linux KVM and Xen, and Microsoft's Hyper-V (experimental) hypervisors in virtual machines.

Actually, I haven't listed all of the improvements... I haven't even had my hands on Fusion 5 long enough to get around to running Windows 7 or 8 yet.

I did run up a Lubuntu 12.04 image and, wow! The performance is fantastic. If you haven't come across Lubuntu it is described on DistroWatch as "a fast, lightweight and energy-saving variant of Ubuntu using the LXDE (Lightweight X11 Desktop Environment) desktop. It is intended to have low-resource system requirements and is designed primarily for netbooks, mobile devices and older PCs."

All in all, this is a great release that really ups the ante for virtual machine technology under OS X. For that achievement, VMware Fusion 5 Professional Edition priced at $99.99 gets a Gearhead rating of 5 out of 5. ■

This is a great release that really ups the ante for virtual machine technology under OS X.

Gibbs is impressed in Ventura, Calif. Your virtual thoughts to gearhead@gibbs.com and follow him on Twitter and App.net (@quistuipater) and on Facebook (quistuipater).

PARITY BITS

532M kWh

The energy Facebook consumed in 2011, 509M kWH of which was used in its data centers.

SOURCE: FACEBOOK

Monitors that do more than just display stuff

Keith Shaw's Cool Tools

Passport 1912nm Internet Monitor

by HP, about $200

▶ **What it is:** The 1912nm is an 18.5-inch monitor with a very basic, non-PC operating system built into the back of the monitor, that lets users connect to the Internet via a Web browser (a basic version of Firefox), as well as view photos or videos or listen to music (via attached SD cards or USB flash drives).

The goal here is to provide companies with a Web experience for users without needing to go and use a full PC — think of locations like a hotel lobby, office reception area, Internet café or airport. The business can provide Internet access via the browser as well as the other basic entertainment options — music, video, photos. The system comes with a USB wired keyboard and mouse, and three additional USB ports (for access to USB-attached storage devices for file access).

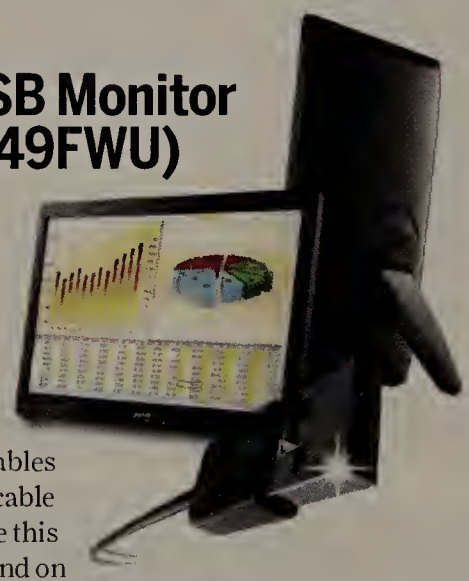
▶ **Why it's cool:** The $200 price tag should appeal to businesses that want to provide basic browser access to customers/guests/users without having to go out and purchase an entire PC, whether the PC is an all-in-one system or not.

▶ **Some caveats:** There's not much in terms of configuration or tweaking — settings changes are minimal. You get what you see — browser access, videos, music and photos. If you want to add software to this, no such luck. If you want to change the resolution, you can't — you're at 1366 by 768 pixels (which seems off when using the browser). Also, it seems odd that the system requires an Ethernet connection — this potentially limits places where you can place the unit. While I could visit any website through the browser, I couldn't stream Netflix instant content, which requires an OS to run on it.

▶ **Grade ★★★ (out of five).**

Portable USB Monitor (model E1649FWU)

by AOC, about $100



▶ **What it is:** The name says it all — it's an additional monitor that you can attach to an existing PC or Mac to provide some extra screen real estate. The 16-inch monitor connects to your system via USB cable only — no extra power cables are needed to run the monitor (the cable provided has two dongles if you use this on older systems). A swivel kickstand on the back of the unit lets you run the monitor in horizontal (landscape) or vertical (portrait) mode. The monitor has a 16:9 aspect ratio, 16ms response time and 1366-by-768-pixel resolution (the same as the HP monitor, but this one looked a lot better).

▶ **Why it's cool:** The monitor is extremely portable — at 2.3 pounds, it feels lighter than my iPad. For business travelers who want to take along an extra screen for presentations (or if they just want to extend their existing notebook screen), this is a very lightweight option for a very reasonable price. I've seen several USB monitors that can extend a user's display — this one, by far, is the lightest and most impressive.

▶ **Some caveats:** There's no sleeve or protection for the monitor if you want to travel with it — you may have to look at buying a separate 17-inch notebook sleeve to try and protect the screen surface. In addition, you can't adjust the brightness on the display, and Mac owners need to download a separate DisplayLink driver (the provided CD only gives a Windows driver), which could cause some confusion. Also, Mac users can't get the pivot feature, which lets you display the monitor in portrait mode.

▶ **Grade ★★★½ (out of five).**

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Tim Golden
RESIDENT CHIEF TECHNOLOGY OFFICER FOR THE AMERICAS
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In this role, he acts as the primary liaison between HP's customers and its ProLiant platform development teams. With 30 years of industry experience at HP, Compaq, Dell, and Apple, Tim brings a comprehensive and thorough understanding of technology trends and emerging product opportunities and has developed a unique ability to convey complex technical advantages into practical business benefits.

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Next-Gen Servers Stress Intelligence and Automation

Hewlett-Packard has been assessing what trends like virtualization and cloud computing mean to its customers. We spoke with HP executive Tim Golden about the demands such trends place on application servers, and how HP has embedded intelligence and increased automation in its next-generation platforms in response.

What types of manual IT tasks can be automated?
Servers need to be more innovative, more intelligent and more self-sufficient given that 51 percent of server outages are linked to human intervention or error. For instance, what if we could, through clever engineering, fix problems that servers or server administrators might otherwise trip up on? One example involves monitoring for multi-bit errors in memory. If we can identify a 2-bit memory error we can automatically fix it on the fly without interruption of service. Another example is an LED light scheme on the hard-disk drive carrier that is designed to not only convey general health status, but also visually identify and isolate failed drives from good drives within RAID sets. That eliminates another relatively common human error.

> We're seeing 6 times performance gains compared to previous-generation servers.

How can server performance improve to meet the demands of enterprise applications, virtualization, and cloud computing?
One way is by addressing the imbalance that exists between processors, memory and storage. Over the last five to six years, storage performance hasn't kept pace with the performance advances we've seen in multicorc processors and in DDR memory. One example of how we've addressed this performance gap is by fine-tuning the algorithms associated with solid-state drives and our new Smart Array controllers. Through such methods, we're seeing 6 times performance gains compared to previous-generation servers.

When looking to reduce energy costs, is it practical to consider higher-performance servers?
It makes perfect sense. With the new-generation platforms running the newest advanced processors, we're seeing performance gains upwards of 50 to 200 percent depending on the workloads. And thanks to the energy-saving techniques we've implemented, we're delivering as much as 70 percent more compute per watt than even our last generation, which was a quantum leap over earlier generations.

Doesn't the increased complexity make next-gen servers more difficult to service?
No; we've introduced many features to make them easier and faster to service. We've also done many things to make them more reliable. That includes equipping servers with an Active Health System that monitors 1,600 different health and configuration parameters 24 hours per day, 365 days per year. That information is stored for one year, and can be used to recover much faster from any problems that do occur. Product engineers can also build more reliable servers by looking at the corrclation between component failures and configuration data.

It sounds as though HP committed significant resources to creating the ProLiant Gen8 portfolio.
It was a 2.5-year development effort, with a $300 million budget. We now have some 917 patents that are either granted or pending related to Gen8 and its immediate infrastructure. Therc are no fewer than 150 unique features on Gen8 servers that didn't exist in our previous generation. If that doesn't address escalating server demands, I don't know what will. ■

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The better hire:

The 50-year-old IT veteran or the fresh grad?

Bet on the vet

Bennett Smith, CTO at Dice Holdings

EARLY IN MY CAREER, A San Francisco-based company had a credo posted on a sign that has remained with me for the nearly 20 years since: "From mistakes come experience, and from experience comes wisdom."

That basic proposition — more experience equals more wisdom — explains why, in the technical world we inhabit in 2012, it makes financial, social and technological sense to hire veteran workers whenever possible.

I'll tick off the whys behind this statement in a moment, but first let me be blunt about one absolutely critical aspect of this debate: To my way of thinking, the word "veteran" has nothing to do with birthdays, nor a thing to do with "youth vs. age." To me, "veteran" has to do with years in tech, with experiences amassed, trials and errors negotiated and personal networks assembled.

Put simply, in IT, where the pace of innovation can turn entire years into rapid eye blinks, the best skill set for an open position is absolutely not calendar-contingent. Instead, we ought to look for a varied set of experiences, the building blocks most likely to equate to a sturdy foundation of wisdom.

In a two-decade career that has taken me from startups to the Fortune 500 to my current role as CTO for Dice Holdings, I've hired scores of both types of technology applicants, raw graduates and pros with limb-length resumes. Far more often than not, making an investment in years of experience (which generally equates to higher salary and benefits packages) has accrued better ROI than a comparably steeper investment in training someone standing at his career's beginning.

How so, you ask?

With veteran IT hires, you gain the benefit of all their mistakes along the way — and all the associated wisdom they've gained across time. Those who have "been there, done that" have developed an approach to work that allows them to disregard unworkable options in favor of best possible solutions and more direct paths to success.

Of course, that isn't always the case. Veterans too deeply rooted in one workplace view or one problem-solving pattern can fail to have the flexibility necessary to prosper in a world that changes

► *See* **Veteran,** *page 21*

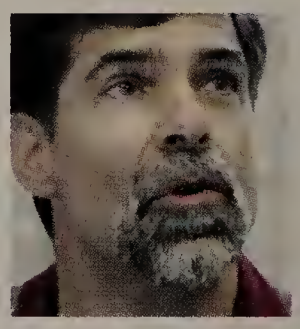
The better hire

The veteran

The recent grad

Cast your vote and see comments at tinyurl.com/8taypgc

New grad has the edge



Shawn Bohner, professor of software engineering and computer science and director of the software engineering undergraduate and graduate programs at Rose-Hulman Institute of Technology

LIKE MOST COMPLEX DECISIONS, THE answer to this debate question is, it depends.

Let's start with some generalizations. The seasoned vets often offer considerable experience on numerous IT projects, but frequently at a premium cost. They make fewer costly mistakes and are often more conservative with new technology. They tend to be close technical followers, and somewhat risk-averse.

In contrast, recent college graduates offer fresh ideas, new technology perspectives, and project energy at a more affordable price. They are more prone to take on projects with newer technologies and make sophomoric mistakes that can slow new projects, costing valuable time. They are eager to test their skills and gain experience on newer technologies, and are often willing to take more risks for innovation that serve the company.

But firms do not give people jobs so much as they hire IT professionals to solve problems. The question is, "who will they hire to solve their problems?" So let's examine the "long poles in the IT problem tent."

Demand for IT is, for the most part, governed by the economy. The current economy is languishing with enormous debt holding down discretionary spending. While IT spending has shown growth, it reflects some pent-up demand for modernization and the need to stretch the value of existing IT assets.

In the late 1990s, the IT labor shortage (prior to the Y2K crisis) had driven the demand for software professionals to an all-time high, driving IT turnover over 11%. The seasoned professional had the edge with valued experience on legacy systems. However, the demand so outstripped supply that many freshly minted software professionals found employment in IT. By 2000, the IT job market was saturated and the demand abated.

As the economy recovered, IT jobs opened up again, only to be governed by the economic downturn starting in 2006. According to Gartner, in 2010 there was nearly 6% growth in IT spending

► *See* **Grad,** *page 21*

▶ **Veteran,** *from page 20*

at a rapid pace. And internally, some hard cases can fail to "play well with others." Communications breakdowns like that not only create social conflict, but they lessen one of the greatest values of having a veteran on the team: the possibility of being a knowledge hub for colleagues.

The key here: an interview process that sifts out potentially intransigent new hires in favor of those who may thrive in a more outward role balancing the right set of skills with the right flexible, adaptable approach to teamwork.

When do IT workers transition from quality professional to veteran? I believe it happens for most tech pros — if it ever happens for them — as they approach the 10-year mark in their career. That's when enough experiences amass to become wisdom, and when a worker's professional connections blossom into the perfect database to find the right answers quickly.

Interestingly, the latest Dice.com survey into companies' hiring habits underscores how valuable these veterans are perceived in the hiring marketplace: While 24% of corporate hiring managers surveyed say they're looking to fill entry-level positions, some 62% are looking for new hires with six to 10 years' experience. And 28% reported that they want to hire tech pros employed in the business for more than a decade.

At the end of the day, hiring the right tech professional is as much art as it is science. For sure, green recruits will have their place in the mix. The best tech hires offer experience and wisdom, flexibility and team skills. If you can find a newbie who offers that package, count yourself fortunate. Otherwise, I say count on veteran talent to get the job done. ■

Dice Holdings is a leading provider of specialized websites for professional communities, including technology and engineering, financial services, energy, healthcare and security clearance.

▶ **Grad,** *from page 20*

followed by nearly 8% growth in 2011, spurring the hiring frenzy we saw last year. However, companies have taken a conservative stance this year and projections show growth dropping to about 3% this year and steadying at 4%-5% for the next few years.

This suggests IT spending is still going to be risk-averse and largely tactical. Therefore, nondiscretionary spending on maintenance and support will continue, and tactical investments will be made in technology (e.g., cloud, mobile) that serves to modernize infrastructure and positions the organization in their market space. Who then, do they hire?

On the maintenance side of things, budgets are tight. Therefore, unless the organization can hire someone who has considerable background in the organization's application domain, managers will probably hire recent graduates who are cheaper.

On the new technology side, there is a similar pattern — investments will have strong business cases with clear exit strategies. Unless the seasoned vets have significant experience as software project managers or deep understanding of newer tech, they will be subject to competition from fresh graduates.

Bottom line, let's assume the element of application domain expertise is the same for the seasoned vet and the recent graduate. Since the number of architects and project managers is only 15% of the rest of the project team, 85% of the hiring would be for IT professionals who are not so specialized. Therefore, the combination of lower cost, faster assimilation of new technologies, and eagerness to make their mark leads one to believe that for 85% of IT hires, the new graduate would be more suitable. ■

Rose-Hulman Institute of Technology is a private college specializing in engineering, mathematics and science higher education.

Send Debate Suggestions to jdix@nww.com

You need both

You need business continuity. You need some workers all along the spectrum from the recent college graduate up into the 60s. Over time you need to develop employees. Some people, as they age, lose the flexibility to continue in the dynamic IT environment and you can't afford to keep them, but that's not true of everyone. Some employees are always willing to learn "new tricks." Over time these folks gather loads of institutional knowledge. You want to keep them as long as they are willing and able to do the job and have them mentor junior IT workers. I've seen bright young workers commit serious errors in design and function, when not mentored by an experienced IT worker. I've also seen young workers thrown into the pond, left to themselves, and if they didn't swim the first time, they were never given another meaningful assignment. **PHD**

Age doesn't matter

Hire the one with the validated skills regardless of age. Today, technology industry certifications for all levels are a great indicator of an individual's capabilities and skills versus knowledge. If you have to make a choice, the individual, young or older, that can demonstrate the skills needed by the employer, is the one I would recommend. There are many modern certifications such as the new HP Accredited Technical Associate or the Microsoft Technology Associate that are designed for students to demonstrate their skills around particularly modern technologies. These help the student enter their career, whereas the traditional IT professional certifications available from all technology companies such as Cisco, Microsoft and Adobe continue to be critical differentiators for more experienced employees. **RAY KELLY**

Ask what the business needs

The answer lies in the objectives and needs of the business at the time of hire. If the organization is thinking "long-term," the new grad likely has the edge. The new grad not only brings a fresh perspective, but also the latest tech skills and education to the business. As most organizations want to embrace emerging technologies such as cloud computing, mobile and big data, the new grad offers them a path to pursue these IT strategies. If, however, the business has a more tactical view and need, the veteran IT professional may be the better choice. Particularly where existing business application, domain or subject matter expertise is needed, the veteran brings an unmatched set of skills. Most organizations, though, need to look to the future. Embracing progressive technologies must be a part of this strategy. **ED AIREY**

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NETWORKWORLD

Web-based conferencing comes of age

Adobe Connect and Cisco WebEx tie for first in 8-vendor test

BY DAVID STROM

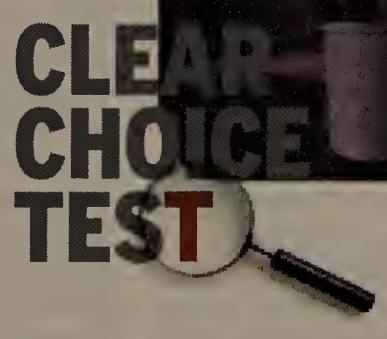
AS more people telecommute, having a reliable way to connect via desktop videoconferencing takes on greater importance. And for employees working in the office, Web-based meetings are a less expensive and less time-consuming alternative to business travel.

Web-based conferencing services aren't new, but they have been getting better, easier to use and less expensive. The options range from one-on-one desktop screen sharing to group video chats to large-scale presentations such as webinars or "virtual conferences."

We looked at eight desktop conferencing services, a mix of market leaders and newcomers, including Adobe Connect, Cisco WebEx, Citrix GoToMeeting, InterCall Unified Meeting (in beta with v5), LogMeIn Join.me Pro, Microsoft Lync 2013 (in beta, and part of Office 365), Skype Premium (now owned by Microsoft), and Vyew Professional.

These vendors have interesting backgrounds — InterCall comes from traditional audioconferencing services back when we used to refer to them as "bridges," Skype and Lync both come from the instant messaging world, GoToMeeting and Join.me come from vendors who started in the remote support business. All of the services cost less than $60 per month. Several (WebEx, Vyew and Join.me) offer free services if your needs are modest, and others offer more expensive plans if you have larger audience requirements.

We focused on the software-as-a-service offerings for each vendor, although some of them also offer on-premise servers (Adobe and Lync, and WebEx later this year, for example). Here are our recommendations based on specific scenarios:



▪ **Ad hoc simple desktop collaboration of two to five people working on a PowerPoint presentation or other document, or where a quick demonstration of an application is needed.** For products to excel here, we looked at how quickly they could set up and start a meeting, sending out a hyperlink via email.

Join.me and WebEx are the best services here, and Vyew has some benefit too.

▪ **Workgroup presentations where several people will be sharing their desktops or need to control the presentation materials.** All of the products can function well in terms of switching presenters (although some make this easier than others) and can load up a PowerPoint slide deck or other documents.

▪ **Archival recorded meeting content that is played at a later date.** There are differences in how each service sets up this archive, and Connect is best here, although WebEx, InterCall and GoToMeeting offer recordings too.

▪ **Large-scale webinar or presentation to an audience of several hundred people.** Here we were looking at ways to handle a crowd and features that look at audience engagement and audience management.

Connect and GoToMeeting's GoToWebinar are best here.

Overall winners are WebEx and Connect

WebEx and Connect tied for first place based on their strong showing in a wide variety of situations. WebEx was better for ad hoc

ILLUSTRATION: HUAN TRAN

NETRESULTS

Vendor	Adobe Connect	Cisco WebEx	Citrix GoToMeeting	InterCall Unified Meeting
Pricing	$55/mo. per host	$49/mo. per 9 hosts, also a 3-person free version	$49/mo. per host	$59/mo. per host or 17 cents per minute
Browser Client	Yes	Yes	No	Yes
Desktop Client	Win, Mac or Linux	No	Win, Mac	Win, Mac (beta)
Mobile Client	iOS v4, BlackBerry PlayBook and Android v2.2	iOS v5, BlackBerry and Android v2.1	iOS v4.2 and Android v2.2	Later this year

meetings, and Connect better for larger-scale meetings and for handling archived content. GoToMeeting isn't far behind.

We were disappointed by Microsoft Lync and Skype, which received the lowest scores, although they are OK for small ad hoc meetings. InterCall came up short in most situations.

Most of the services offer per-host (meaning the meeting presenter) pricing on a monthly basis. For a small business or a well-defined workgroup with the same presenter, this makes sense. Lync and Skype charge by the number of end users. InterCall also offers a 17-cent-per-minute per user plan, which could work in your favor if you don't use it much or have many meeting participants. Most of the services offered quantity discounts and some offered pre-payment discounts on annual contracts. Vyew has a complex fee schedule that combines per-host and per-user pricing.

While our review refers to "Web conferencing services," the secret sauce behind each of these is either Flash or Java to make connections with your local desktop audio and video resources. If you haven't upgraded your browser lately, or if you have very old versions of Flash or Java on your computer, using these services is a quick way to find out that you need to stay current with the latest technologies. And keeping the browser and Java and Flash in sync is sometimes vexing, particularly if you are using an older operating system such as XP or Mac OS 10.4.

Adobe Connect

Adobe Connect's strength is larger-scale conferences and training sessions. Indeed, Adobe has turned Connect into a post-conferencing reporting powerhouse that can compete with the webinar services offered from places such as On24 and others.

It's less effective for ad hoc meetings because setup will take some effort to enter all the information required.

Connect offers dozens of reports that provide meeting usage, training activities, and others that are appropriate for larger-scale conferences and e-learning situations. Connect also has the strongest features when it came to measuring audience engagement and supporting archival meeting content.

Adobe sells Connect at $55 per host, which is at the high end of the services we tested. There are enterprise plans for multiple host accounts, and a separate plan for handling up to 1,500 participants.

The weakest part of Connect is its audio options. You can use built-in audio from your devices, or you can opt to set up a separate audioconferencing service that is external to Connect and comes with an extra cost. In the configuration screens for your conference setup, these options aren't clear. If you use the built-in audio, you have to turn on the mic for each user; by default they are all muted. That is a nice touch for larger meetings.

Connect's mobile clients had the most consistent user interfaces and a clean look. There are icons on the right- and left-hand sides to turn on and off the mic and video camera, bring up the chat window or see the list of participants. Screen transitions were snappy on both iPhone and Android. One interesting feature is that all meeting participants can page through a PowerPoint slide deck on their own and then synch up with the host.

Meetings can be controlled from the mobile clients too, and, depending on the client, can upload files: The iOS client, for example, can only upload photos while the Android client has access to anything that you have stored on your SD memory card. This is more a limitation of the mobile OS.

The only thing the mobile client can't do is the initial conference "room" setup. Connect's rooms are persistent, which is handy when a team is working over a period of time on a set of documents, for example.

Conference recording is also strong: Connect will record not just the audio and shared video, but also the chat and participant names by default. You can delete the names or the chat transcript if you wish.

Cisco WebEx

WebEx is one of the best all-around conferencing services and works well in a number of different use cases. Earlier this year WebEx began offering a free version, which is one reason it scored higher on the ad hoc use case. There are some caveats, however: The free plan is limited to a three-person meeting and you can share your entire desktop, not any specific applications. You also can't do remote control sessions. Your audio is also limited to what comes with your computer-connected devices. Finally, there is no support.

If you have more than three participants, you can buy several paid Premium versions. The Premium 8 plan will cost $24 per month for a single host and up to eight participants. For $49 per month, you have a Premium 25 plan, which is limited to nine hosts and 25 participants. If you need more than that, there is an enterprise plan.

Getting a meeting set up isn't onerous. You can attach an agenda and upload files that are archived online for later reference. There's also a variety of data you can require during this process for self-provisioning each user. Meetings can be recorded, but annotations and files are only displayed for the Web clients. The recordings can take several hours to be posted to the WebEx Meeting Place portal page. The resources from Connect or Vyew are better organized.

The mobile clients can't send live video, and the Android and iPhone versions have somewhat different UIs, with controls spread differently across both top and bottom menu bars. Mobile users also can't be presenters. WebEx doesn't have a desktop client: You start all meetings from a browser session and

LogMeIn Join.me Pro	Microsoft Lync 2013	Skype Premium	Vyew Professional
0 - $19/mo. per host	$6/mo. per user	$9/mo. per user	0 - $20/mo. per host
Yes	Yes	No	Yes
Win or Mac	Win 7 or 8 only, Mac (Lync 2011)	Win, Mac	No
iOS v3.2 and Android (varies)	iOS v4.3, Windows Phone and Android v2.3 (2010 clients)	iOS v4.3, Windows Phone and Android v2.1	No

it works with Java to set up your conference in the browser.

Citrix GoToMeeting

GoToMeeting is another all-around service that can fit many use cases. In the past, Citrix somewhat short-changed its Mac client, but the company plans to remedy this in the near future by boosting support for app sharing and multiple monitors. The service is $49 per host per month. Citrix offers a separate product for handling larger-scale meetings with the GoToWebinar service, which offers the ability to do interactive polls and surveys. This costs $99 per host per month for fewer than 25 participants or $499 per host per month for up to 1,000 participants.

GoToMeeting operates the reverse from WebEx: There is no Web client. When you connect to a meeting via your browser, you download the appropriate desktop client. Citrix will be adding the ability to host meetings from its mobile clients later this month, and the Android version displayed a control for this, although it didn't work properly. The desktop control panel provides clean controls and areas for text chats and audio controls.

If you need to share a lot of different video streams, such as webcams and different shared desktops, GoToMeeting supports up to six different ones, all in what it claims is HD video. The video images looked clearer and crisper than those shown by the other services, but your assessment might differ. Only a single screen can be recorded for the archive, however.

Meetings can be recorded and saved as a .mov file or .wmv with the conference audio and any visual information: This file is saved to the presenter's hard drive. If you want to share it, you will have to figure out a way to either email it or put it on a hosted file sharing service. WebEx and Connect have a better system to post the recordings directly to their clouds. The text chat log is saved in a separate file on your hard drive as well.

Citrix charges extra for using toll-free phone dial-in numbers. Other audio options include using a regular phone number for which you pay the toll charges, in addition to using the built-in computer audio.

InterCall Unified Meeting

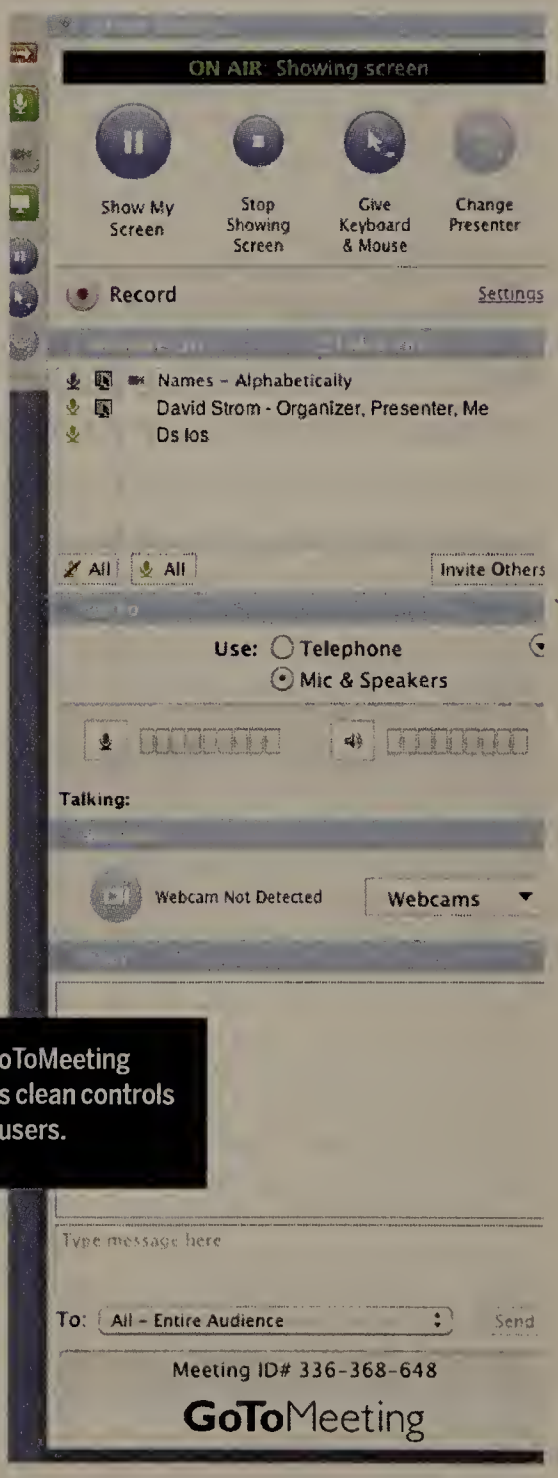
InterCall had the least attractive user interface of the services we tested, and seemed to lack the polish of Connect or the snappy feeling of GoToMeeting. It is best for smaller workgroups. The screen refresh rate lagged quite a bit. Like Join.me, you'll need to download the desktop client if you want to be a meeting host — otherwise you can connect via its Web client for either Macs or Windows.

InterCall doesn't have a separate mobile client, although it's working on it for later this year. The existing mobile clients are for the company's audioconferencing service only. The Web conferencing service has two separate pricing packages: The per-host option is $59 per month. The second plan charges 17 cents by the connected minute and the number of users on each conference call. If you don't use the service much, this could be a better option. Still, this per-minute mentality is indicative of the company's roots as an audioconferencing vendor.

When you set up your conference, you have a very nice display of the running apps on your computer and which ones you want to share.

You can also define a particular region of your screen. One small nit: If your application is minimized, you need to bring it up on your desktop before it will be shared on-screen to the meeting participants. There is also the ability to construct simple polls that appear on the sidebar, and draw on your screen, and you can share your webcam and schedule meetings in advance with an Outlook plug-in.

Scheduling meetings can be done via the Outlook plug-in, which will alert your participants with a lengthy email notification or via the Web-based schedule manager. Meetings can be recorded and played back at a later date. The service supports all three audio options, including using the built-in computer audio. However, for a lower price, Vyew or Join.me can deliver a better conferencing experience.



Citrix GoToMeeting provides clean controls for end users.

LogMeIn Join.me Pro

LogMeIn's Join.me is for one of the easiest services to get started with. It will take literally seconds to start your meeting, and get people sharing their desktops and talking to each other. It also supports iPhone and Android participants. It doesn't work for archival records of your conference, but for most ad hoc and workgroup situations, it is a gem.

Join.me offers a free service that only supports computer audio and no meeting

SCORECARD

Product	Adobe Connect	Cisco WebEx	Citrix GoTo Meeting	InterCall Unified Messaging	LogMeIn Join.me Pro	Microsoft Lync	Skype	Vyew Pro
Features (25%)	4	4.5	4.5	4	4	4	3	4
Usability (25%)	4	4	4	5	4.5	2.5	3.5	3.5
Cost/benefit (25%)	3.5	5	4	3	5	3.5	4.5	4.5
Post conference (25%)	5	3	3.5	3.5	2	2.5	2	3
Total	**4.1**	**4.1**	**4.0**	**3.6**	**3.9**	**3.1**	**3.3**	**3.8**

Scoring key: 5: Exceptional; 4: Very Good; 3: Average; 2: Below Average; 1: Consistently subpar

Join.me offers a free service that only supports computer audio and no meeting scheduling in advance. You just share your entire screen. You also can't swap presenters. The Pro service removes these limitations and is $19 a month for a single presenter, with a yearly prepaid discount of $149.

All meetings are setup from the Web client, and when you are done specifying the details, the service sends you a .zip file that you load up to start the meeting. If you want to participate in the audioconference with your computer's mic and speakers, you will need to download this file as well. You can share particular apps (for the Pro service) or your entire screen, but one thing that you can't share is your webcam. There is a limit of 250 participants per conference. Each meeting gets a special nine-digit number that is part of the URL, so you can send this link (such as http://Join.me/123456789) to your participants.

Join.me's user interface is clean. There are buttons to start screen sharing, to join the audioconference and for text chats. If you have your own audioconferencing service, you can also use that to connect your participants for the Pro service.

I had screen refresh issues when a presenter was running more than a dozen tabs from his computer, and would recommend that anyone using this service keep the number of open tabs on their browser to a minimum.

If you need a lower-cost service to handle a larger audience using a wide variety of desktops and mobiles, then Join.me's meeting audience limit of 250 participants will be both appealing and cost-effective.

Microsoft Lync 2013

Lync is the latest incarnation of Live Meeting and took the longest to get installed. Part of this was because I was using earlier versions of Microsoft Office on my desktops and it wants to install the 2013 Live Office version. Part of it could be because Lync 2013 is officially in "preview" edition, meaning not yet a production service. And part could be that there are different feature sets for the different Lync versions, which gets confusing.

Microsoft has a real grab bag of clients that are running older software versions (there is a Mac 2011 version and 2010 mobile versions, for example). The 2013 version can currently only run on either a Windows 7 or Windows 8 PC and is part of Microsoft's Office 365 software-as-a-service package. Microsoft will also have a Windows 8-only Lync app available later in October that will be available to IM Skype users and be touch-enabled to work with tablet PCs. Nevertheless, the 2013 Windows client still crashed several times and I had to re-install it on a second Windows 7 computer before I could continue testing.

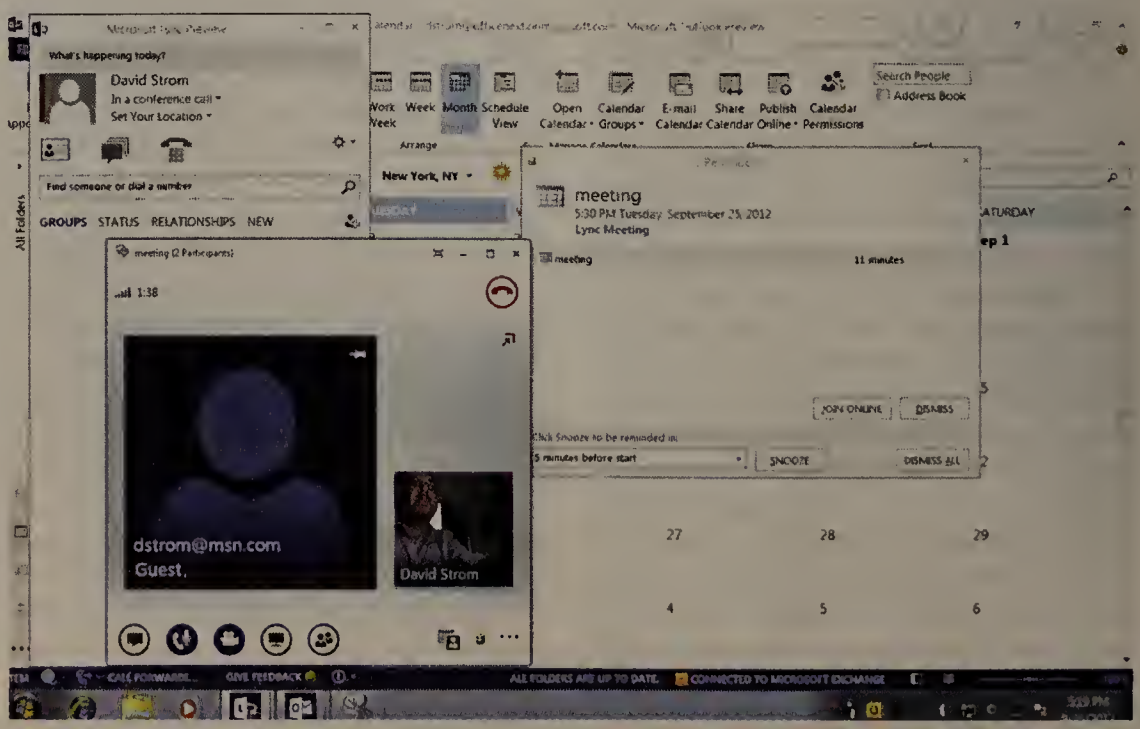
Once I got it installed and when it was working, it was easy to start meetings and share various pieces of content. Lync is using the very spare square-tiled interface that will take some getting used to in order to understand what each icon means. Each tile will show a webcam, or a shared desktop app, or just the user name of the participants.

Lync charges on a per-user basis, which can add up if you have a lot of users. Each user has to register with a Microsoft account, and the price starts at $6 per month per user and can go higher if you want more advanced features as part of your Office 365 installation.

If you are already using Microsoft's Office Live products, then this might be a useful upgrade. But if you are using older Office versions, you might find installing and using Lync to be as frustrating as I did.

Lync is weak on audio support, only offering built-in computer audio connections. But Microsoft has forged alliances with several audioconferencing services, including InterCall, to provide dial-in service.

Ironically, of all the conferencing services, Lync had trouble keeping our PowerPoint slide presentations in sync, with noticeable delays when we moved from one slide to another. It also had issues with slide font and format fidelity. If you use the Web client, you can't be a presenter or upload files to the shared meeting space.



If you use older Office versions, Microsoft Lync might be frustrating to you.

is a separate Web admin portal that can also be used.

Skype Premium

We use Skype daily as a replacement for our office phone to make calls from our computer and for text-based instant messaging. It excels in small ad hoc situations, but as a general-purpose Web meeting service, it is lacking.

One issue is that its mobile clients are really not up to the same level of functionality as its desktop clients, or its competitors' mobile clients for that matter. You can't initiate a group video call from the mobile client, for one. Also, the mobile client can't send any video from the phone camera.

You can use the mobile client to view a shared screen or participate in a group audioconference. And if you do a one-to-one call you can get the video from your mobile. Finally, the mobile clients can be slow to connect and post messages, particularly if you make use a number of group chats as it has to "catch up" with the conversations in those windows when it first loads.

The free version of Skype lets you use a live camera video or to share your screen. You can have both streams as part of the premium account, which will cost $9 per month per user with yearly discounts available.

And as with GoToMeeting, there is no Web client available: You must first download the Skype software and a relatively recent version to support group calls (Skype for Windows 5.10, Skype for Mac 5.8, Skype for iPhone 4.1 and Skype for Android 2.9). You will also need to register with the Skype service to connect to the Web conference: The other services allow anonymous users with just the meeting ID or conference room URL to participate in a conference.

The Skype Premium group call feature has different participant limits depending on what you are going to share, which is somewhat confusing. You can send text messages to up to 300 people, have a voice conference with up to 25 people and share screens with up to 10 people. On the voice conference, you can mix Skype users with PSTN phones, and take advantage of the ultra low Skype rates for those calls.

Skype doesn't include conference recording, but there are many third parties that offer at least audio recording of their calls. My recommendation is to stick with Skype if you need one-on-one calls or for up to three participants, but otherwise look elsewhere for larger meetings.

Security question #17

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Vyew Professional

If you want something so simple to set up it will take seconds to get a conference going, then look at Vyew. Even with its free plan, you have sophisticated controls over the rights of what each participant can do, along with comments, real-time text chats and an integrated audio conferencing service.

Vyew doesn't have a separate mobile client. Since it uses Flash, it won't work in iOS-based devices, and it didn't respond well in my Android phone's mobile browser. But you can't argue the price: There is a free plan for up to 10 participants at a single conference. Vyew also has fee-based versions, with two pricing tiers, Plus and Professional.

The latter has an initial limit of 15 participants, which can be expanded up to 80 participants at $1 a month per participant, and an initial $20-a-month fee.

You can share your entire desktop or define a region with a cropping tool. If you want to switch between presenters you first have to stop sharing your screen before your correspondent starts sharing theirs. It also lacks support for webcams.

One of the more interesting features of Vyew is that its conferencing rooms are always open and persist after the meeting, which is similar to what Connect has but is also easier to navigate. This is somewhat more user-friendly than saving the meeting video in an archive, and it can be useful if a group is working together on the same set of documents over a period of days, for example.

It is easier to access these materials — and indeed you can embed a room in your own Web page — than what WebEx and GoToMeeting offer with their archive services. You can also set limits on how your participants can access your conference rooms and what level of access they have. Finally, you can't record the conference, unlike some other services, although the company is working on adding that feature.

Vyew is lacking in support, as you might suspect from a low-cost service. You can email your issues to a general mailbox, but there is no direct communication with the vendor. But if you don't mind these limitations, it can be a nice service for lower-end uses. ■

Strom is the founding editor-in-chief of Network Computing magazine and has written thousands of magazine articles and two books on various IT and networking topics. His blog can be found at strominator.com and you can follow him on Twitter @dstrom. He lives in St. Louis.

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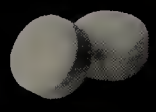

1876
Aspirin
Arthur Eichengrün

1897
The diesel engine
Rudolf Diesel

1928
The first pregnancy test
Selmar Aschheim

1938
Nuclear fission
Otto Hahn

1941
The first computer
Konrad Zuse

1998
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Great innovation comes from great people.

► **Jobs,** *from page 13*

server data warehouse I'm looking for Microsoft [skills]. Oracle people need not apply. And vice versa. And quite frankly a lot of candidates don't want to learn new skills," he says.

Given the amount of data companies are dealing with, they only want candidates who have handled that volume, says Modis' Kelley. A person's data experience, not the industry they're in, is what matters to employers, she notes.

"Data is data," she says. "Industry vertical really isn't going to be the key driver. It's going to be what did you do with the data, how large of an environment was it."

Firms will avoid candidates who have only worked in smaller environments because at "very large enterprise big data programs ... you're talking about huge amounts of data and that could be very overwhelming to someone."

While IT professionals have a grasp of what traits work for data science's technical positions, defining what backgrounds make for a good analyst proves difficult. These positions go beyond possessing strong technology skills so being a solid developer does not necessarily translate to an analyst job. Companies need employees who can make the data work for the business.

"Companies are really looking for higher level quantitative skill sets for these roles," Kelley says. "It's not every developer you come across. It's someone with that business acumen who can parlay those skills into strategic decision making." ■

► **Ethernet,** *page 12*

an advocate of Token Ring but that advocacy, and a huge chunk of IBM's networking business, succumbed to Ethernet and Cisco in 1999.

"IBM would have doubled in size because it would have controlled another standard," says ESG's Oltsik. "Cisco wouldn't have had the chance to ride the standards wave like it did."

And the spread of wireless LANs may have been hampered as well had Ethernet failed, says IDC's Mehra.

"Wi-Fi is an easier overlay over Ethernet than over disparate, incongruous networks," he says. "I don't think it would have been as pervasive" had Ethernet not become the networking standard.

What is likely, though, had Ethernet failed is the success of systems integrators and professional services organizations. They would be doing five to 10 times the business they do today tying together disparate technologies in the LAN, MAN and WAN, Mehra says. ■

► **Windows,** *page 12*

will pay for them? How will they be secured? "These are pieces that need to fall into place in the enterprise planning cycle," he says.

It's also questionable whether they will gain traction as platforms for business applications, DeGroot says. "I think that is going to be a very tough sell," DeGroot says, because the apps have to be vetted by the Microsoft Store before they will be allowed on closed Windows 8 devices. Businesses won't want to leap that hurdle, nor will they want to side-load apps on devices to get around the restriction that Windows 8 apps must be reviewed by and sold through the store. "I have some difficulty imagining many organizations are going to want to do that."

Beyond that, developers are not prepared to write for Windows 8; their training and experience leans toward traditional enterprise applications for conventional desktops without touch capabilities. ■

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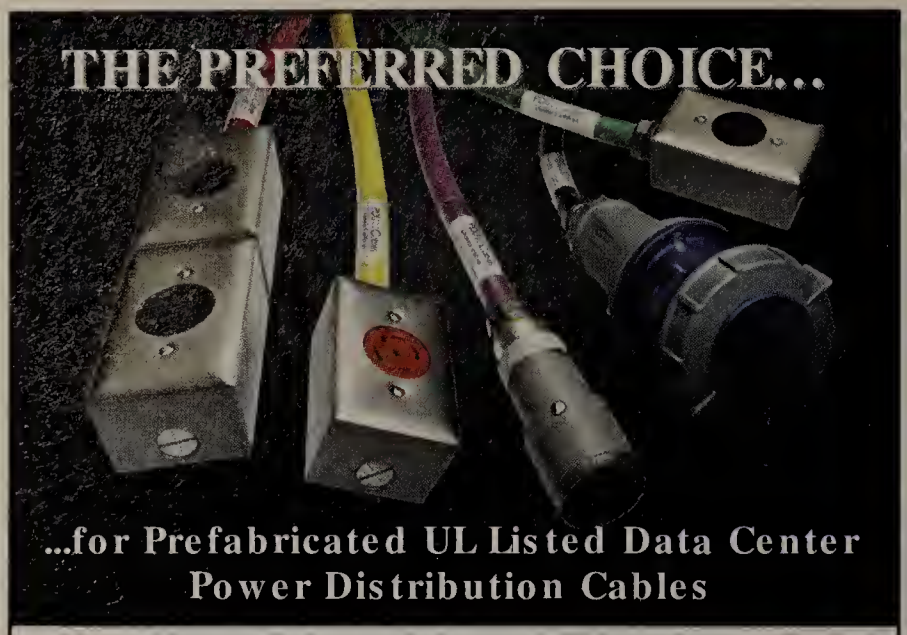

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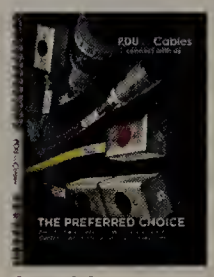

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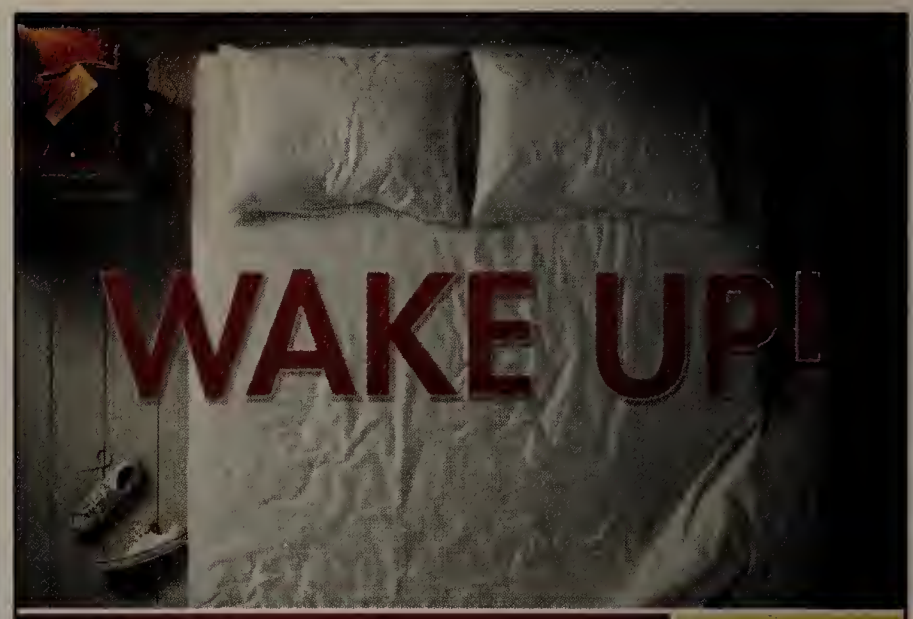

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BACKSPIN | BY MARK GIBBS

Leading your users to (partial) literacy

"YOU CAN lead a horse to water but you can't make it drink." — *the oldest English proverb still in regular use*

You chaps in IT are a pretty educated bunch. You deal with complex ideas and you have to read and write all the time. You know about spelling and grammar checkers, you understand the need to edit the stuff you write ... you are literate.

Alas, it might not be possible to say the same about the rest of your organization, and if there's one thing that will sink your company in these harsh economic times, it is an inability to communicate. For any organization trying to get ahead in a competitive market, having staff with spelling, writing and, for that matter, speaking problems, is a huge problem.

Consider spelling: In this age of automatic spell checkers, poor spelling is inexcusable. Just consider how many times every day you see "teh." I have yet to find a spelling checker that misses that, yet we see it constantly. So why aren't your users using automatic spell checkers? And if they have them and are still making goofs, why is that?

This underlines one of the odd things about computer technology: Most users have a tendency to only know about and use just the minimum they need to get by. If they were driving a car in the same way they'd never get out of first gear.

As for writing, do your users proofread what they write? Based on the email I get, I would venture a guess that very few do so. They dash off email and documents of all kinds and it is a good bet that the bulk are laced with glaringly bad grammar and littered with misspellings. I swear, some of the messages I get sound like they were dictated to Siri while driving a tank that was on fire in a hailstorm.

But where we see constant failure in the literacy department is in the use of tired stock phrases. At least half of the personally addressed messages I receive each day use phrases like "I just want to touch base." Really, you want to touch my base? Sounds distinctly overfamiliar to me. And don't tell me you want to "reach out" to me (you must have very long arms), and don't bother asking if I have a "quick second" (no, I do not have a quick second, mine are all of the regular length).

Then there's "quantum leap," a particularly irritating phrase which, in the way it's commonly used, makes no sense! According to the Free Dictionary, a quantum is the "smallest amount of a physical quantity that can exist independently," so a quantum leap is really, really tiny and unless you're a particle physicist, you probably mean quite the opposite.

While persuading your users to eschew cliched language might be an uphill if not un-winnable battle (you could consider adding rules to your mail server to bounce back messages using trite phrases, though I doubt you'll ever get that idea to fly), you can institute training to make sure they at least know how to use their spelling and grammar checking tools properly. Whether they'll actually use them is another matter.

To rephrase that old proverb: You can lead a user to word processing, but you can't make him think. ■

Gibbs, in Ventura, Calif., wants to know what "fails" you've seen in the spelling, writing and speaking departments. Touch base for a quick second at backspin@gibbs.com and, taking a quantum leap, follow him on Twitter and App.net (@quistuipater).

LAYER8 | BY MICHAEL COONEY

What's the big idea?

IT SEEMS the public and private industries are more frequently being asked to come up with ideas for what might best be called "the Next Big Things." The main driver of this trend is the U.S. government, but there are a number of private enterprises looking to pay you good money for your ideas.

The idea is perhaps summed up best by NASA, which said its Centennial Challenges program is designed to get to what it calls "unconventional solutions from non-traditional sources."

The latest government call for science and technology innovation comes from the researchers at the Defense Advanced Research Projects Agency (DARPA), the White House Office of Science and Technology Policy and NASA.

Indeed calls for such unconventional solutions is growing. DARPA and the White House group this month put out a public call this week for ideas that could form what they call the Grand Challenges — ambitious yet achievable goals that would herald serious breakthroughs in science and technology.

In a speech defining what the government groups are looking for, Thomas Kalil, deputy director for policy for the White House Office of Science and Technology Policy, said that while there might not be a universally accepted definition of what constitutes Grand Challenges, they typically have certain attributes, including:

• They can have a major impact in domains such as health, energy, sustainability, education, economic opportunity, national security or human exploration.

• They are ambitious but achievable. Proposing to end scarcity in five years is certainly ambitious, but it is not achievable.

• Grand Challenges are compelling and intrinsically motivating. They should capture the public's imagination. Many people should be willing to devote a good chunk of their career to the pursuit of one of these goals.

• Grand Challenges have a "Goldilocks" level of specificity and focus. They should have measurable targets for success and timing of completion. On the other hand, a Grand Challenge that is too narrowly defined may assume a particular technical solution and reduce the opportunity for new approaches.

Then last week NASA said it wants to gauge industry interest in the agency holding one of its Centennial Challenges to build the next advanced unmanned aircraft. NASA said it is planning this challenge in collaboration with the Federal Aviation Administration and the Air Force Research Lab, with NASA providing the prize purse of up to $1.5 million.

NASA and DARPA have set the bar high on these public challenges, having developed some pretty advanced technology with them like cutting-edge unmanned autos and green aircraft. Private firms like the X Prize Foundation have had successful challenges in the past, helping develop the first public spacecraft, for example.

Also last week, the Federal Trade Commission offered $50,000 for a way to stop those annoying robocalls.

The question is, do you have an idea for the Next Big Thing? People with checkbooks open want to know. ■

If you have thoughts on this topic let me know: mcooney@nww.com.

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Security that evolves with your company.
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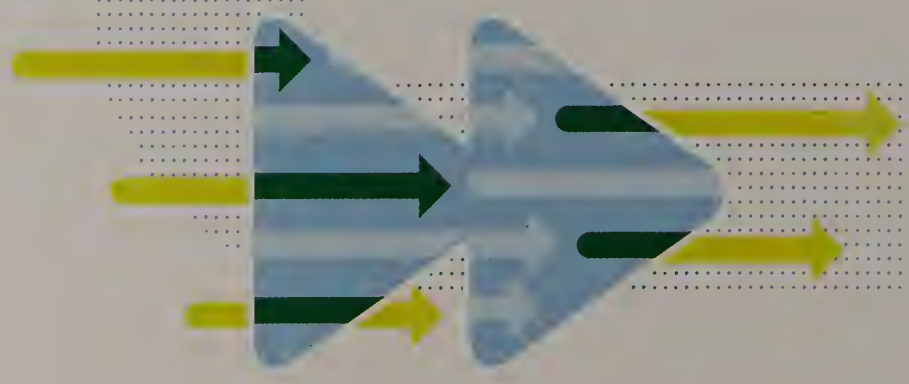

Providing the confidence to drive your business forward.
As your midsize business continues to leverage new technology, VMS can help protect your IT infrastructure from ever-evolving cyber threats.

To receive a free security scan for your company[1] and find the right IBM Business Partner, call **1-877-IBM-ACCESS** or visit **ibm.com**/engines/vms

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